CLAIMS

1. Micro-fluxgate magnetometer comprising:

- an open magnetic circuit comprising at least one magnetic core based on a magnetic material with at least two free ends,

- one or several detection windings wound around the core,

- one or several excitation windings wound around the magnetic core, so as to enable the entire magnetic material to reach saturation.

2. Micro-fluxgate magnetometer according to claim 1, the excitation windings being arranged so as to induce a uniform core excitation magnetic field.

3. Micro-fluxgate magnetometer according to claim 1 or 2, at least one of the excitation windings projecting beyond at least one of the free ends of the core.

4. Micro-fluxgate magnetometer according to claim 3, one of the excitation windings comprising at least one turn projecting entirely beyond at least one of the ends of the magnetic core.

5. Micro-fluxgate magnetometer according to claim 3, in which the width of the excitation windings is l_{be}, at least one of the excitation windings projecting from at least one of the free ends of the

magnetic core by a projecting length D greater than (1/10) l_{be}.

6. Micro-fluxgate magnetometer according to claim 3 in which the total length of the magnetic core is L_{noytot} and the total length of the excitation windings is L_{betot}, where L_{betot} is greater than L_{noytot}.

7. Micro-fluxgate magnetometer according to claim 1 or 2 or 3, the excitation windings and the detection windings being interlaced.

8. Micro-fluxgate magnetometer according to claim 3, the magnetometer also comprising a compensation circuit capable of applying a magnetic field compensating a magnetic field to be measured.

9. Micro-fluxgate magnetometer according to claim 3, the magnetometer also comprising a current generator coupled to the excitation winding(s) and measurement means coupled to the detection winding(s).

10. Micro-fluxgate magnetometer according to claim 3, the magnetometer being formed from a stack of thin layers.